



## INTERNATIONAL APPLICATION PUBLISHED UNDER THE PATENT COOPERATION TREATY (PCT)

(51) International Patent Classification: <b>G06F 17/60</b>		A1	(11) International Publication Number: <b>WO 00/55780</b> (43) International Publication Date: 21 September 2000 (21.09.2000)
(21) International Application Number: <b>PCT/US00/02326</b>		Published	
(22) International Filing Date: 01 February 2000 (01.02.2000)			
(30) Priority Data: 09/271,356 17 March 1999 (17.03.1999) US			
(60) Parent Application or Grant CENDANT PUBLISHING, INC. [/]; O. KELLER, Brett [/]; O. MELLAND, Scot [/]; O. ISAAC, Martin [/]; O. LAROY, Gary [/]; O. DELUCA, Vincent, M. ; O.			

(54) Title: COMPUTER-IMPLEMENTED SYSTEM AND METHOD FOR BOOKING AIRLINE TRAVEL ITINERARIES  
 (54) Titre: SYSTEME ET PROCEDE INFORMATIQUES POUR LA RESERVATION D'ITINERAIRES DE VOYAGE DE LIGNES AERIENNES

## (57) Abstract

A method and apparatus for purchasing an airline ticket, includes entering into a computer information describing a flight desired by a consumer (102), including a target price (103), and performing a search on an airline reservation system database for flights corresponding to the desired flight information (102). The method determines whether a flight found during the search has a fare that is at least equal to the target price (103), and if so books the flight to hold it for the consumer for a predetermined period of time to allow the consumer to effect payment. The consumer is informed by e-mail notification of the seat reservation and instructing the consumer regarding payment requirements to effect purchase of the airline ticket. If a flight having the target price (103) or better is found, the method continues to periodically perform the search over a predetermined number of days into the future, and inform the consumer by e-mail of the ongoing results of the search (201).

## (57) Abrégé

L'invention concerne un procédé et un appareil pour l'achat d'un billet d'avion. L'édit procédé consiste à entrer dans des renseignements informatiques décrivant un vol recherché par un consommateur (102), comportant un prix cible (103), et à rechercher dans une base de données de système de réservation de lignes aériennes les vols correspondant aux informations de vol recherchées (102). L'édit procédé permet de déterminer si un vol trouvé au cours de la recherche est à un tarif égal au prix cible (103), et si c'est le cas, à réserver le vol, de sorte qu'il soit retenu pour le consommateur pendant un période pré-déterminée de manière à lui permettre d'effectuer le paiement. Le consommateur est informé par notification E-mail de la réservation de la place et reçoit des instructions concernant les conditions de paiement requises pour effectuer l'achat du billet d'avion. Si un vol correspondant au prix cible (103) ou à meilleur marché est trouvé, la recherche continue périodiquement pendant un nombre de jours pré-déterminé dans le futur, et le consommateur est informé par E-mail des résultats en cours de la recherche (201).

PCT

WORLD INTELLECTUAL PROPERTY ORGANIZATION  
International Bureau



INTERNATIONAL APPLICATION PUBLISHED UNDER THE PATENT COOPERATION TREATY (PCT)

(51) International Patent Classification 7 :  G06F 17/60		A1	(11) International Publication Number: <b>WO 00/55780</b>  (43) International Publication Date: 21 September 2000 (21.09.00)
(21) International Application Number: PCT/US00/02326	(22) International Filing Date: 1 February 2000 (01.02.00)	(81) Designated States: AE, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, CA, CH, CN, CR, CU, CZ, DE, DK, DM, EE, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, NO, NZ, PL, PT, RO, RU, SD, SE, SG, SI, SK, SL, TI, TM, TR, TT, TZ, UA, UG, UZ, VN, YU, ZA, ZW, ARIPO patent (GH, GM, KE, LS, MW, SD, SL, SZ, TZ, UG, ZW), Eurasian patent (AM, AZ, BY, KG, KZ, MD, RU, TI, TM), European patent (AT, BE, CH, CY, DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE), OAPI patent (BF, BJ, CF, CG, CI, CM, GA, GN, GW, ML, MR, NE, SN, TD, TG).	Published <i>With international search report.</i>
(30) Priority Data: 09/271,356 17 March 1999 (17.03.99) US	(71) Applicant: CENDANT PUBLISHING, INC. [US/US]; 3033 South Parker Road, Aurora, CO 80014 (US).		
(72) Inventors: KELLER, Brett; 62 Longview Drive, Ridgefield, CT 06877 (US). MELLAND, Scot; 276 New Norwalk Rd., New Canaan, CT 06840 (US). ISAAC, Martin; 50 Skating Pond Rd., Trumbull, CT 06611 (US). LAROY, Gary; 116 Winthrop Pl., Old Hickory, TN 37138 (US).			
(74) Agents: DELUCA, Vincent, M. et al.; Rothwell, Figg, Ernst & Kurz, Suite 701 East, 555 13th Street N.W., Columbia Square, Washington, DC 20004 (US).			
(54) Title: COMPUTER-IMPLEMENTED SYSTEM AND METHOD FOR BOOKING AIRLINE TRAVEL ITINERARIES			
(57) Abstract			
<p>A method and apparatus for purchasing an airline ticket, includes entering into a computer information describing a flight desired by a consumer (102), including a target price (103), and performing a search on an airline reservation system database for flights corresponding to the desired flight information (102). The method determines whether a flight found during the search has a fare that is at least equal to the target price (103), and if so books the flight to hold it for the consumer for a predetermined period of time to allow the consumer to effect payment. The consumer is informed by e-mail notification of the seat reservation and instructing the consumer regarding payment requirements to effect purchase of the airline ticket. If a flight having the target price (103) or better is found, the method continues to periodically perform the search over a predetermined number of days into the future, and inform the consumer by e-mail of the ongoing results of the search (201).</p>			
<pre> graph TD     101[101 USER LOGIN] --&gt; 102[102 ENTER CITY PAIRS AND TRAVEL DATES]     102 --&gt; 103[103 ENTER TARGET PRICE]     103 --&gt; 104[104 ENTER CARRIER PREFERENCE]     104 --&gt; 105[105 ENTER TRAVEL FLEXIBILITY]     105 --&gt; 106[106 ENTER NAMES AND NUMBER OF PASSENGERS]     106 --&gt; 107[107 SEARCH]   </pre>			

**FOR THE PURPOSES OF INFORMATION ONLY**

Codes used to identify States party to the PCT on the front pages of pamphlets publishing international applications under the PCT.

AL	Albania	ES	Spain	LS	Lesotho	SI	Slovenia
AM	Armenia	FI	Finland	LT	Lithuania	SK	Slovakia
AT	Austria	FR	France	LU	Luxembourg	SN	Senegal
AU	Australia	GA	Gabon	LV	Latvia	SZ	Swaziland
AZ	Azerbaijan	GB	United Kingdom	MC	Monaco	TD	Chad
BA	Bosnia and Herzegovina	GE	Georgia	MD	Republic of Moldova	TG	Togo
BB	Barbados	GH	Ghana	MG	Madagascar	TJ	Tajikistan
BE	Belgium	GN	Guinea	MK	The former Yugoslav Republic of Macedonia	TM	Turkmenistan
BF	Burkina Faso	GR	Greece	ML	Mali	TR	Turkey
BG	Bulgaria	HU	Hungary	MN	Mongolia	TT	Trinidad and Tobago
BJ	Benin	IE	Ireland	MR	Mauritania	UA	Ukraine
BR	Brazil	IL	Israel	MW	Malawi	UG	Uganda
BY	Belarus	IS	Iceland	MX	Mexico	US	United States of America
CA	Canada	IT	Italy	NE	Niger	UZ	Uzbekistan
CF	Central African Republic	JP	Japan	NL	Netherlands	VN	Viet Nam
CG	Congo	KE	Kenya	NO	Norway	YU	Yugoslavia
CH	Switzerland	KG	Kyrgyzstan	NZ	New Zealand	ZW	Zimbabwe
CI	Côte d'Ivoire	KP	Democratic People's Republic of Korea	PL	Poland		
CM	Cameroon	KR	Republic of Korea	PT	Portugal		
CN	China	KZ	Kazakhstan	RO	Romania		
CU	Cuba	LC	Saint Lucia	RU	Russian Federation		
CZ	Czech Republic	LJ	Liechtenstein	SD	Sudan		
DE	Germany	LK	Sri Lanka	SE	Sweden		
DK	Denmark	LR	Liberia	SG	Singapore		
EE	Estonia						

**Description**

**5**

**10**

**15**

**20**

**25**

**30**

**35**

**40**

**45**

**50**

**55**

5

10

COMPUTER-IMPLEMENTED SYSTEM AND METHOD FOR  
BOOKING AIRLINE TRAVEL ITINERARIES

15

## BACKGROUND OF THE INVENTION

20

## 1. Field Of The Invention

25 The present invention generally relates to interactive computer systems, such as interactive Web sites on the Internet. In particular, the invention relates to a computer-implemented system and method for enabling on-line customers to purchase airline travel tickets at the best possible price.

30

## 10 2. Description Of The Background Art

35 There are known in the art interactive travel services on the Internet that allow consumers to purchase airline travel tickets on-line. Typically, such services require the consumer to input to the travel service server information regarding the 15 origination and destination cities, dates and approximate times of departure, and optionally a preferred carrier. The travel 40 service then carries out a search on a commercial on-line airline reservation system such as Apollo or SABRE.

45 The service then displays to the user a list of flights 20 for which seats are listed as being available at that time, together with the fares for such flights. The user then has the option of purchasing a selected flight from the list, either by transmitting to the service credit card information 50 over the Internet, by calling a telephone number or possibly by 25 transmitting payment information by facsimile.

55

5                   A system is also known whereby a consumer can specify a  
price at which she is willing to purchase an airline ticket for  
travel between designated cities. In order to make use of this  
service, however, the consumer must be willing to make an  
10                5 irrevocable offer, with the possible result that the consumer  
may have to accept tickets for a flight schedule and time of  
departure that may be inconvenient or less than desirable.  
Once a carrier has accepted the consumer's offer, the fare is  
15                10 automatically charged to the consumer's credit card and the  
consumer is not able to cancel or to receive a refund. As  
such, the consumer may be stuck with tickets for a flight that  
is inconvenient, with a carrier that the consumer may wish to  
20                15 avoid, or in a worst case, for a flight at a time that the  
consumer cannot travel because of unexpected intervening  
events. Conversely, if the consumer's offer is rejected by all  
25                20 airlines, the request is canceled and the consumer must go  
through the entire data entry process again to initiate another  
request.

Many Internet travel services also provide an e-mail  
30                20 service through which subscribers are regularly notified of so-  
called "lowest fares" available for flights between specified  
city pairs. However, such fares typically represent the lowest  
published fares as published in airline tariffs, and do not  
35                25 represent fares actually available on particular flights. As  
such, it is common that when the consumer accesses an Internet  
travel service website in response to such an e-mail  
notification, she will not be able to purchase any tickets for  
40                30 the so-called "lowest published fare" on any actual flight.

There remains a need in the art for an interactive travel  
30                35 service that not only allows the consumer to set her own price  
for airline travel, but once such a flight is found, gives the  
45                40 consumer the freedom to make a final decision as to whether to  
actually purchase the airline tickets within a certain time  
frame.

35  
50                   SUMMARY OF THE INVENTION

5                   The present invention solves the existing need by  
providing a method of purchasing an airline ticket, including  
the steps of entering into a computer information describing a  
flight desired by a consumer, including a target price,  
10               5 performing a search on an airline reservation system database  
for flights corresponding to the desired flight information,  
determining whether a flight found during the search has a fare  
that is at least equal to the target price, automatically  
15               10 booking a flight found to be at least equal to the target price  
to thereby reserve a seat on said flight, and informing the  
consumer of the seat reservation and instructing the consumer  
regarding payment requirements to effect purchase of the  
20               20 airline ticket.

According to a second aspect, the invention provides  
15               15 apparatus for purchasing an airline ticket that implements the  
abovementioned method.

25               According to a third aspect of the invention, the  
invention provides a method of purchasing an airline ticket,  
including the steps of entering into a computer information  
30               20 describing a flight desired by a consumer, including a target  
price, performing a search on an airline reservation system  
database for flights corresponding to the desired flight  
information, determining whether a flight found during the  
35               25 search has a fare that is at least equal to the target price,  
when no flights having fares at least equal to the target price  
have been found, periodically performing the search over a  
predetermined number of days, and informing the consumer of the  
40               30 results of each search. In a preferred embodiment, the  
notification is transmitted to the consumer by e-mail.

30

45

50

BRIEF DESCRIPTION OF THE DRAWINGS

5

The invention will become more clearly understood from the following detailed description in connection with the accompanying drawings, in which:

10

5 FIG. 1 is a flow diagram of a user login procedure according to one embodiment of the invention;

FIG. 2 is a flow diagram of a process for presenting fare search results to the user;

15

10 FIGS. 3A-3D are flow diagrams of alternate fare search requests and search result determinations, depending upon user preferences and flexibility;

20

FIG. 4 is a flow diagram of a process for determining whether to book a return itinerary or to ask the user to request a continued search;

25

15 FIG. 5 is a block diagram of a distributed communication network system according to the invention; and

25

FIG. 6 is a flow diagram of a process for carrying out continuing fare searches according to one embodiment of the invention.

30

20 DETAILED DESCRIPTION OF THE PREFERRED EMBODIMENTS

35

Referring to Fig. 5, a system according to one preferred embodiment of the invention includes a flight booking server 501, a client station 502, a commercial airline reservation 35 database system 503, and a distributed communication network 504. According to one preferred embodiment, network 504 is the Internet, and server 501 contains a URL on the World Wide Web.

40

Client station 502 may be a desktop computer, notebook computer, workstation, minicomputer, or other similar type of 30 computer. Server 501 preferably is a multiple line Internet server of a type that is commercially available.

45

Airline reservation system 503 may be one of a number of professional information database providers, such as SABRE or Apollo. Such databases compile, among other things, airline 35 travel information for all major carriers, including routes, timetables, fares, tariffs and associated rules and

50

Referring to Fig. 1, a consumer wishing to purchase airline travel tickets "logs in" to the server, such as by inputting the URL of the booking server on the consumer's Web browser, at step 101. At this time, the consumer or user will be presented with a web page containing spaces for information to be entered by the user. At step 102, the user enters as basic request data the departure and destination cities, along with the dates of departure and return. At step 103, the user enters a target price, representing the fare that the user would like to pay for the tickets. After this preliminary data entry, at step 104 the user may enter a carrier preference, or may indicate no preference among airlines by requesting the booking server to search among all air carriers for the best fare.

30 At step 105, the user may indicate whether her travel  
31 plans are flexible, such that the user may depart or return  
32 from one to three days before or after the entered travel  
33 dates. If the user's plans are flexible, the user will  
34 indicate whether the flexibility is respect to the date of  
35 departure or date of return, and will indicate the number of  
36 days either before or after the inputted date of travel. If  
37 the user is not flexible, the user will enter "not flexible" in  
38 the appropriate line on the web page.

30 At step 106, the user enters the number and names of  
additional accompanying passengers, if any, and at step 107,  
45 the user requests the booking server to initiate a search for a  
flight meeting the entered information, which is at or below  
the user's indicated target price. The booking server also  
35 requests the user to input address, telephone and e-mail

5 address information for booking and future communication  
purposes.

10 As will be described in detail below, the booking server  
next generates a search entry and transmits it to the airline  
15 reservation system, and receives a return itinerary  
representing the results of the search. As shown in Fig. 2, in  
the event that the search failed to uncover a flight meeting  
15 the user's specifications that is at or below the user's target  
price, the lowest available fares are displayed at step 201.  
20 The number of fares displayed can be any number, sorted from  
lowest to highest fare; in the preferred embodiment the two  
lowest fares are displayed. The user is then given the  
25 opportunity to request the booking server to try to hold a seat  
or seats at one of the displayed fares, at step 202. If the  
user decides to accept one of the fares by clicking on the  
30 appropriate link at step 203, the booking server will book the  
itinerary at step 204. This will in effect hold the seats for  
the user for a certain period of time, usually 24 hours, during  
which the user must actually purchase the tickets. If the user  
fails to purchase the tickets, the booking is canceled.

35 If the user does not want to book the flight at the  
displayed fare, the user clicks on the appropriate link at step  
205. The booking server at step 206 then asks the user whether  
she wishes for the booking server to continue to search for  
35 fares meeting or beating the target price. If the user  
indicates that continued searching is desired, the itinerary  
and target price file is placed into a search memory at step  
40 207. Otherwise, at step 208, the user clicks on one of a  
number of alternate links and is taken to the page specified by  
30 the link.

45 Various possible search configurations and result  
analyses according to the present invention will be described  
with reference to Figs. 3A - 3D. Step 3001 represents the  
situation where the user has not specified any preferred  
35 carrier, and has indicated no flexibility regarding the travel  
dates. At step 3002, the booking server creates an "open

5 segment," which is a shell itinerary entry that serves as a  
5 template for the fare search engine of the reservation system.  
10 The booking server will create an open segment for each leg of  
10 the user's trip. At step 3002, the booking server generates a  
5 "BFP" entry with optional generic qualifiers. BFP stands for  
15 "Bargain Finder Plus." Bargain Finder Plus is a suite of  
15 commands that allow the SABRE reservation system to evaluate a  
specific travel request to determine the lowest price itinerary  
20 for a given set of travel qualifications. A BFP entry is a  
10 SABRE fare search engine entry that searches over 1000 travel  
options to determine the lowest priced alternatives for  
25 scheduled flights, based on the specific criteria contained in  
the open segment and from additional qualifiers, if any,  
15 contained in the entry. BFP allows a user or a robotic agent  
20 to perform the search taking into account times of day, flight  
availability, carrier preference, multi-airport cities and  
25 connection cities.

25 Generic qualifiers may include entries such as negative  
30 biases for airlines which the booking server has placed on a  
20 "stop sell" list, either because they are in questionable  
35 financial condition or have not conducted business in a  
25 consumer-friendly manner. Qualifiers may also include positive  
30 biases for booking server-preferred carriers. Use of booking  
server-preferred carrier qualifiers enables the booking server  
35 to look deeper into the carrier's schedules to locate the  
25 lowest possible fares.

40 At step 3004, the BFP entry is transmitted to the airline  
30 reservation system search engine. The search engine uses the  
40 BFP entry to search the airline schedule database, and returns  
30 the search results to the booking server.

45 At step 3005, the booking server will transmit a "fare  
35 shop" entry to the search engine. A fare shop entry is an  
45 airline reservation system entry that identifies the lowest  
35 published fare for a given itinerary, regardless of  
50 applicability to the specified dates of travel or actual  
availability of fares. The fare shop entry returns a "best

5                   "case" price that typically would have many conditions and  
restrictions attached to it. The fare shop search results also  
are returned to the booking server..

10                At step 3006, the booking server determines the two  
5                lowest fares from the returned BFP search results, by filtering  
the results first by fare and then by booking server  
15                preferred/non-preferred carrier status. The fare shop results  
are then filtered by eliminating negative-bias carriers or  
those carriers who have published fares but who do not have any  
20                present service for the market. The lowest resulting published  
10                fare is then retained as the fare shop search result.

25                Fig. 3B illustrates the process for the situation,  
20                represented at step 3101, where the user has specified a  
preferred carrier, and has indicated no flexibility in travel  
15                dates. Open segments are created at step 3102 and BFP entries  
are generated at step 3103, similar to Fig. 3A. At step 3104,  
25                the booking server generates a BFP entry containing the open  
segment and having as a qualifier the preferred carrier or  
carriers specified by the user. At step 3105 the BFP entries  
20                are transmitted to the fare search engine of the airline  
30                reservation system, and at step 3106 a fare shop entry for the  
open segment is transmitted to the search engine.

35                At step 3107, the booking server determines, from the  
35                return BFP entries, the lowest airfares available among the  
user's specified preferred carriers, and the lowest airfares  
40                available for all carriers (filtered for negative bias and  
other generic qualifiers as appropriate). At step 3108, the  
lowest published fare is determined from the fare shop search  
45                results, filtered for negative-bias carriers and carriers with  
30                published fares but with no service in the market.

50                Referring to Fig. 3C, step 3201 represents the situation  
45                where the user has not specified any preferred carrier and has  
indicated flexibility in the entered dates of travel. At step  
35                3202, open segments are created as above. At step 3203, BFP  
entries are generated using the open segments and optional  
55                qualifiers, such as negative carrier bias or booking server-

5 preferred carrier bias. At step 3204, BFP entries are  
generated with the consumer's flexibility in travel dates  
indicated. The BFP entries are transmitted to the airline  
reservation system search engine at step 3205, and a fare shop  
10 entry is transmitted at step 3206. In this instance, the  
booking server at step 3207 determines the two lowest fares  
from the return BFP entries, based first on fare, then on  
15 preferred date of travel, and then by booking server-  
preferred/non-preferred carrier. At step 3208, the lowest  
10 published fare is determined from the return fare shop entry,  
as above.

Step 3301 in Fig. 3D represents the case where the user  
20 has specified a preferred carrier, and has indicated  
flexibility in travel dates. Open segments are created at step  
3302, and generic BFP entries with optional qualifiers are  
15 generated at step 3303. At step 3304, BFP entries are  
generated contained the user's specified carrier as a  
25 qualifier, at step 3305, BFP entries are generated with the  
user's flexibility indicated, and at step 3306 BFP entries are  
20 generated with the specified carrier as a qualifier and the  
user's flexibility indicated. The BFP entries are transmitted  
30 to the airline reservation system search engine at step 3307,  
and the fare shop entry is transmitted at step 3308.

35 The search results in the form of return BFP entries and  
25 return fare shop entries are received by the booking server,  
and at step 3309 the booking server determines the two lowest  
fares based on the lowest airfare available on the user's  
40 preferred carrier, the lowest airfare available on the user's  
preferred carrier on the specified travel dates, and the lowest  
30 airfare available for all carriers (subject to the negative-  
bias qualifier placed in the BFP entry). At step 3310, the  
45 lowest published fare is determined from the return fare shop  
entry, as explained above.

Fig. 4 illustrates a process for acting on the lowest  
35 fare results determined in Figs. 3A - 3D, according to a  
50 preferred embodiment of the invention. At step 401, the BFP

5 entry return itineraries are compared with the consumer's target price. At step 402, it is determined whether the lowest airfares (as determined in Figs. 3A - 3D) are less than or equal to the consumer's inputted target price. If so, at step 10 5 403 the booking server returns the fare and itinerary to the airline reservation system for a booked itinerary, providing the consumer's identification information as required. At this point, the seats are held for the consumer for a predetermined period of time, such as 24 hours, during which the consumer 15 10 must make payment. At step 404, the booking server displays the booked itinerary to the consumer at the client station, and prompts the client for payment. Payment may be effected by 20 15 directing the consumer to call an 800 number, or in the alternative may present the consumer with the option of entering credit card information over the Internet (preferably through a secure site using encrypted communication).

25 If the search results fail to find an airfare that meets or is lower than the consumer's target price, the booking server at step 405 selects the two lowest fares and the lowest 30 20 fare shop fare (*i.e.*, published fare), and displays them along with the itinerary to the consumer. The server at step 406 then prompts the consumer (client) as to the consumer's desire 35 30 to have the server keep searching for possible lower airfares for the subject itinerary.

35 25 According to the invention, the server will store the consumer's itinerary together with the consumer's personal 40 40 information including the consumer's e-mail address, and will request additional searches for a predetermined number of days subsequent to the original search. It is well known in the 30 45 airline industry that changes in flight fares, conditions, restrictions, etc. are made daily and literally tens of thousands (or more) of fare changes are made and published each day.

45 According to the procedure shown in Fig. 6, at step 601, 35 50 stored user itinerary files are retrieved from a search memory storage area in the booking server. Such files are those for

5 which consumers have requested additional searching. The files  
may be stored with the date of the original search, so that  
upon retrieval that date is compared with the present date to  
determine whether to continue the search or to discard the  
10 5 file.

15 Assuming the search should proceed, at step 602 the BFP  
and fare shop entries are transmitted to the airline  
reservation system search engine as disclosed above. At step  
10 603, the return results are compared with the consumer's target  
price. If there exists an airfare less than or equal to the  
consumer's target price as determined at step 604, the fare is  
returned to the reservation system for a booked itinerary,  
20 which thereby reserves the seat for the consumer for a  
predetermined period of time. At step 605, the booking server  
15 immediately sends the consumer an e-mail message notification  
that an airfare meeting the consumer's target price has been  
25 found, and provides the consumer with instructions for  
purchasing the tickets in the event that the consumer still  
wishes to do so.

30 20 If the search results still fail to return an airfare  
meeting the consumer's target price, at step 607 the server  
will notify the consumer by e-mail of the search results,  
including the lowest available fares found during that search,  
35 25 and at step 608 the booking server will return the consumer's  
file to storage for performing another search the next day,  
until the predetermined number of days have expired. According  
to a preferred embodiment of the invention, the search is  
40 30 carried out for seven consecutive days; however, any other  
number of days may be chosen during which to carry out the  
search. In this manner, the present invention provides a  
system and method whereby a consumer can be assured that a seat  
45 35 on an actual flight will be reserved if a fare is found that  
meets the consumer's target price. This represents a  
significant advance in the art over existing e-mail travel  
35 notification services which simply inform the consumer of the  
50

5 lowest published fares for a given itinerary, which may bear no relationship to available fares on actual flights.

As a corollary to the invention, a service may be provided wherein the server accepts a user's travel dates, city pair, times, carrier preference, e-mail address, and preferred day of e-mail delivery, and perform scheduled searches over a predetermined period of time (for example, once a week for one month) to find the lowest available fare and lowest published fare, and deliver the search results to the user by e-mail. In this way, the user will gain a better recognition of the direction, magnitude, and frequency of fare changes over an extended period of time, and thus will be able to set a more realistic target price for a flight when the user desires to have the server actually hold a seat once the target price (or better) has been found.

25 The invention having been described, it will be apparent to those skilled in the art that the same may be varied in many ways without departing from the spirit and scope of the invention. Any and all such modifications are intended to be 20 included within the scope of the following claims.

50

35

40

45

50

**Claims**

5

10

15

20

25

30

35

40

45

50

55

What is claimed is:

- 5 1. A method of purchasing an airline ticket, comprising the  
2 steps of:  
3        entering into a computer information describing a flight  
4 desired by a consumer, including a target price;  
10 5        performing a search on an airline reservation system  
6 database for flights corresponding to said desired flight  
7 information;  
15 8        determining whether a flight found during the search has  
9 a fare that is at least equal to said target price;  
10 10        automatically booking a flight found to be at least equal  
11 to said target price to thereby reserve a seat on said flight;  
20 12        and  
13        informing the consumer of the seat reservation and  
14 instructing the consumer regarding payment requirements to  
15 effect purchase of the airline ticket.
- 25 1 2. The method of claim 1, wherein the step of entering  
2 comprises the step of entering a preferred carrier, and the  
3 step of searching comprises the step of qualifying the search  
30 4 with the preferred carrier.
- 35 1 3. The method of claim 1, wherein the step of entering  
2 comprises the step of indicating flexibility in dates of  
3 travel, and the step of searching comprises the step of  
4 broadening the search to encompass the indicated flexibility.
- 40 1 4. The method of claim 1, further comprising the step of  
2 continuing the step of searching for a predetermined number of  
3 days when a first search has failed to find a flight that is at  
4 least equal to said target price, and performing the steps of  
45 5 automatically booking and informing the consumer when a such a  
6 flight is found during a continued search.
- 50 1 5. The method of claim 1, wherein the step of informing  
2 comprises sending an e-mail notification to the consumer.

5       1       6. The method of claim 1, wherein said computer is a server on  
2       the Internet.

10      1       7. Apparatus for purchasing an airline ticket, comprising:  
2                a computer for receiving information describing a flight  
3                desired by a consumer, including a target price; and  
4                a program in said computer for performing a search on an  
15       5           airline reservation system database for flights corresponding  
6                to said desired flight information;  
7                said program determining whether a flight found during  
8                the search has a fare that is at least equal to said target  
20       9           price;  
10                said program automatically booking a flight found to be  
11                at least equal to said target price to thereby reserve a seat  
12                on said flight; and  
25       13           said program informing the consumer of the seat  
14                reservation and instructing the consumer regarding payment  
15                requirements to effect purchase of the airline ticket.

30      1       8. The apparatus of claim 7, wherein the information received  
2        by said computer includes a preferred carrier, and said search  
3        is qualified with the preferred carrier information.

35      1       9. The apparatus of claim 7, wherein the information received  
2        by said computer includes flexibility in dates of travel, and  
3        said search encompasses the indicated flexibility.

40      1       10. The apparatus of claim 7, wherein said program continues  
2        the search for a predetermined number of days when a first  
3        search has failed to find a flight that is at least equal to  
45       4           said target price, and performs the steps of automatically  
5        booking and informing the consumer when a such a flight is  
6        found during a continued search.

5       1 11. The apparatus of claim 7, wherein said program informs  
2       said consumer by sending an e-mail notification to the  
3       consumer.

10      1 12. The apparatus of claim 7, wherein said computer is a  
2       server on the Internet.

15      1 13. A method of purchasing an airline ticket, comprising the  
2       steps of:  
3            entering into a computer information describing a flight  
4       desired by a consumer, including a target price;  
5            performing a search on an airline reservation system  
6       database for flights corresponding to said desired flight  
7       information;  
8            determining whether a flight found during the search has  
9       a fare that is at least equal to said target price;  
10       10       when no flights having fares at least equal to said  
11       target price have been found, periodically performing the  
12       search over a predetermined number of days, and informing the  
13       consumer of the results of each search;  
14       14       automatically booking a flight found to be at least equal  
15       to said target price to thereby reserve a seat on said flight;  
16       16       booking a flight at a lowest available fare when  
17       requested by the consumer in response to a notification of the  
18       results of a continued search; and  
19       19       informing the consumer of the seat reservation and  
20       instructing the consumer regarding payment requirements to  
21       effect purchase of the airline ticket.

40      1 14. The method of claim 13, wherein the steps of informing  
2       comprise sending an e-mail notification to the consumer.

45

50

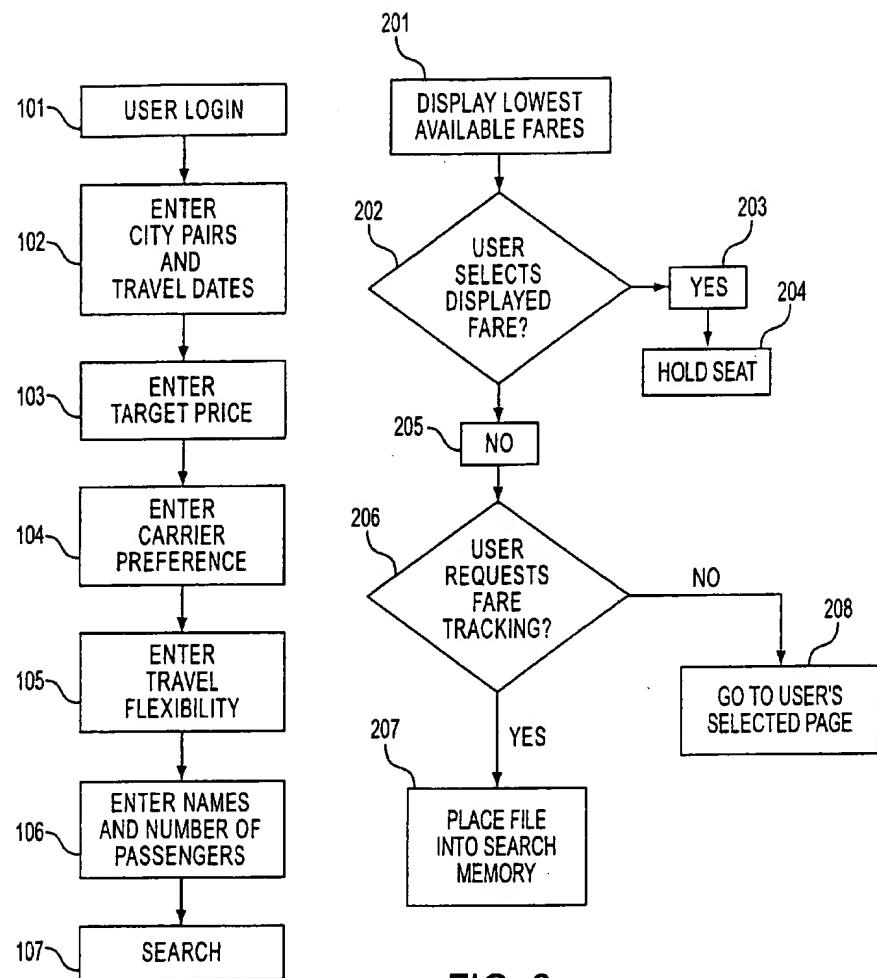


FIG. 2

FIG. 1

2/8

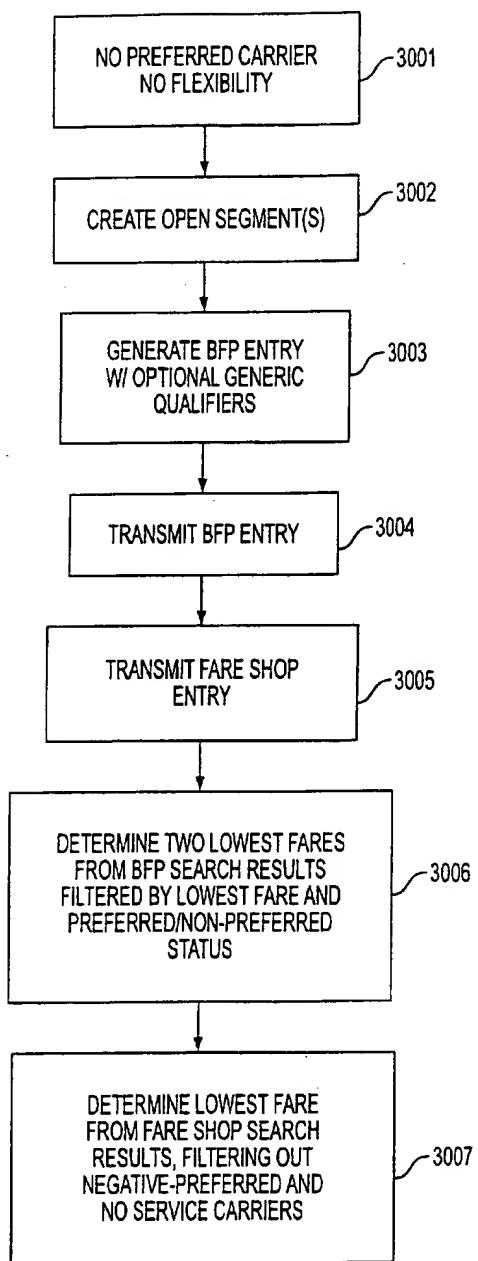


FIG. 3A

SUBSTITUTE SHEET (RULE 26)

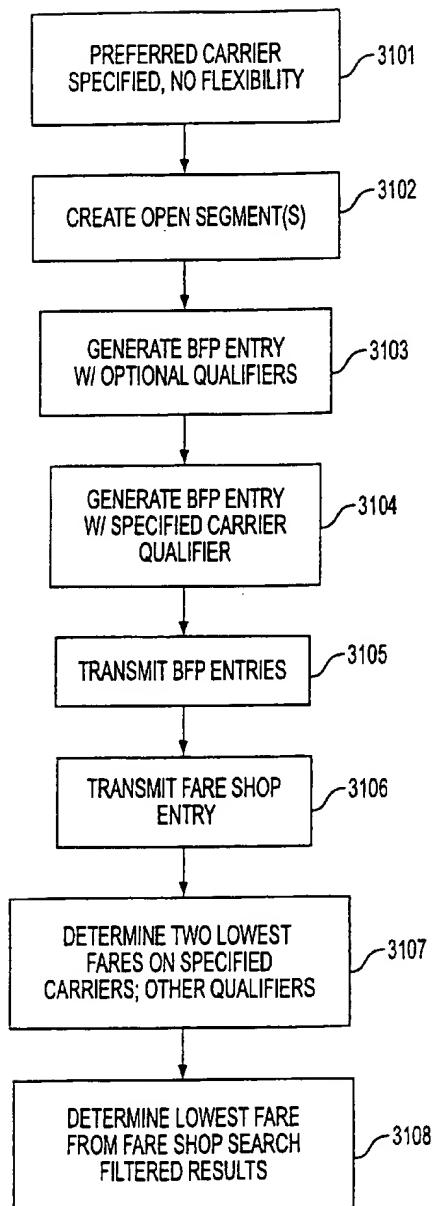


FIG. 3B

SUBSTITUTE SHEET (RULE 26)

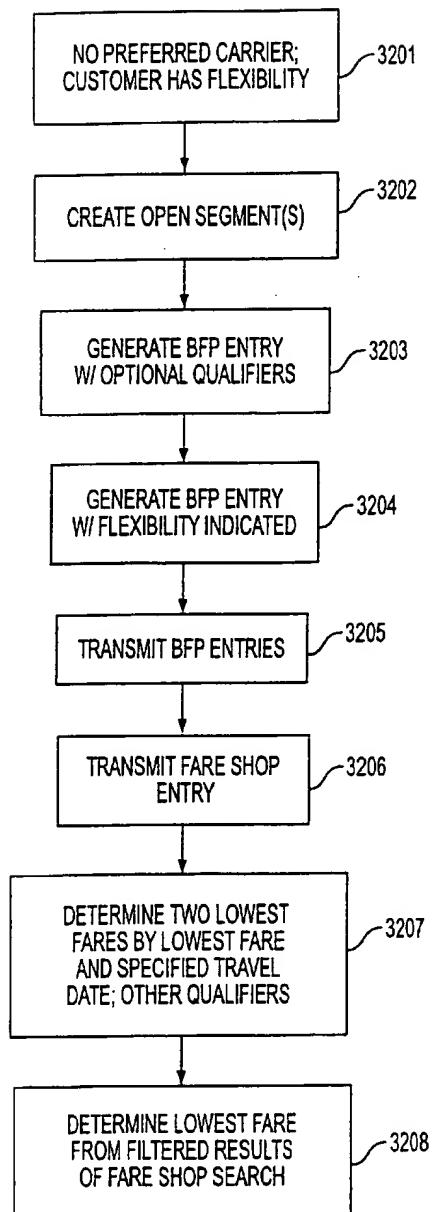


FIG. 3C

SUBSTITUTE SHEET (RULE 26)

5/8

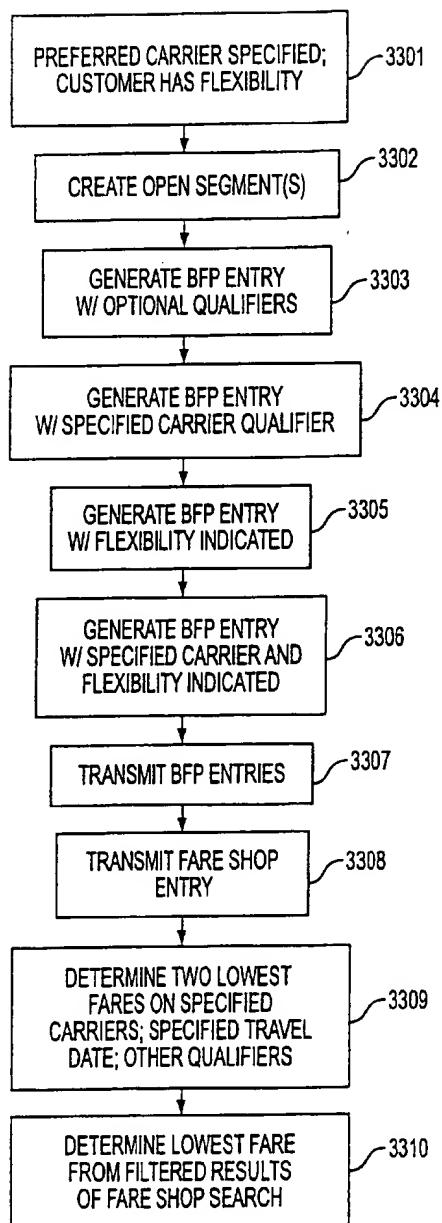


FIG. 3D

SUBSTITUTE SHEET (RULE 26)

6/8

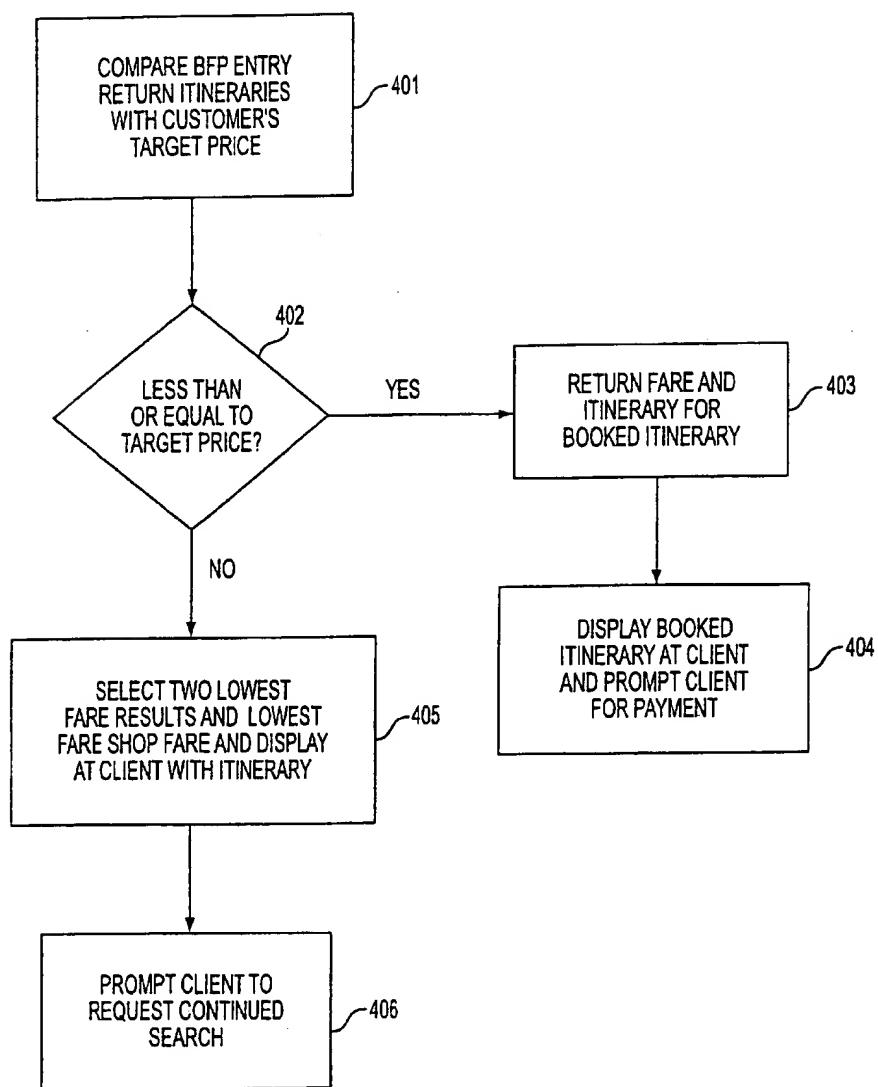


FIG. 4

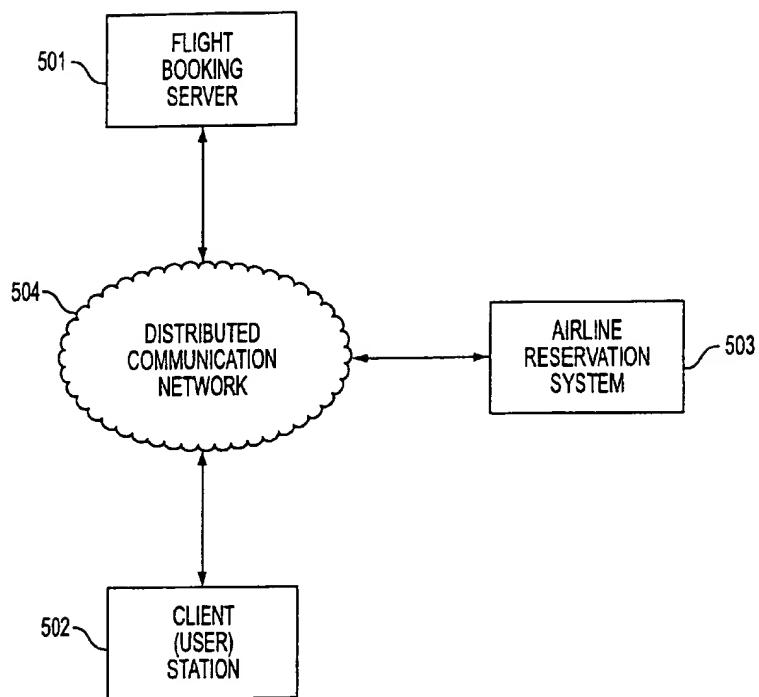


FIG. 5

8/8

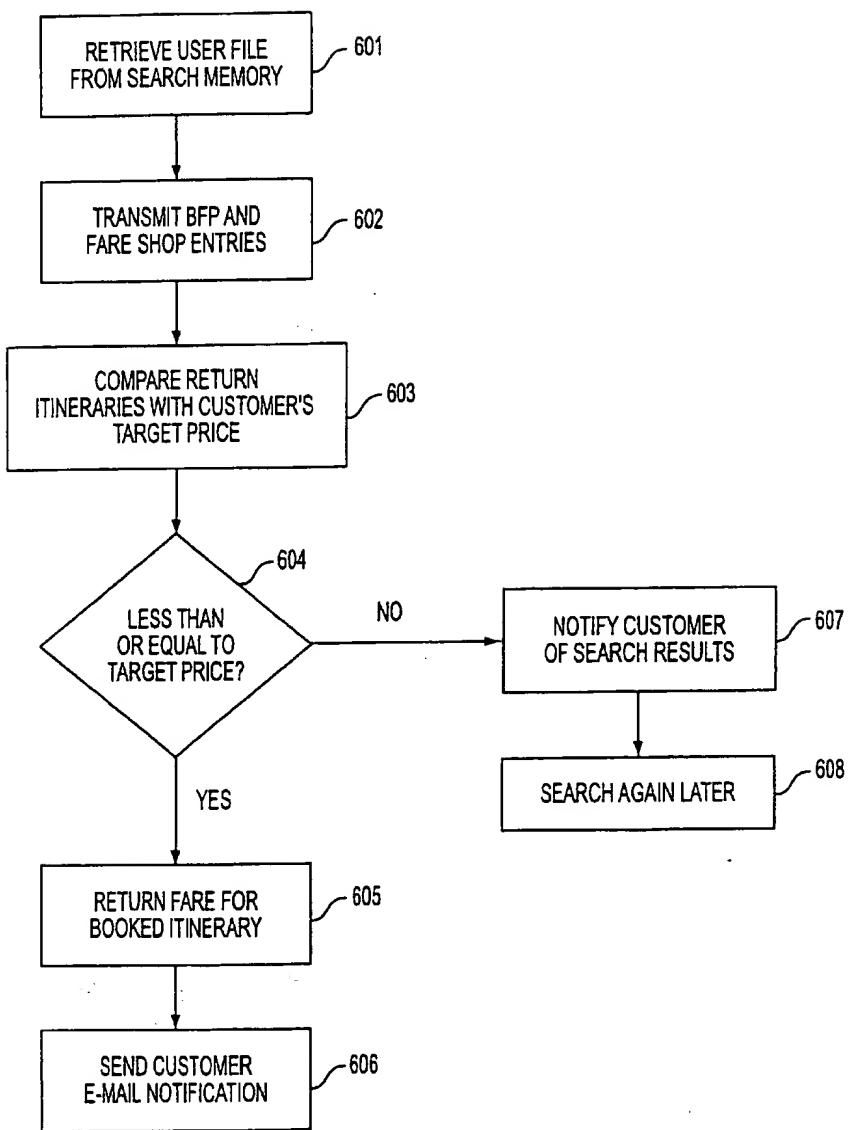


FIG. 6

## INTERNATIONAL SEARCH REPORT

International application No.  
PCT/US00/02326

<b>A. CLASSIFICATION OF SUBJECT MATTER</b>		
IPC(7) :G06F 17/60 US CL. :705/5, 26 According to International Patent Classification (IPC) or to both national classification and IPC		
<b>B. FIELDS SEARCHED</b>		
Minimum documentation searched (classification system followed by classification symbols)  U.S. : 705/5, 26		
Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched  NONE		
Electronic data base consulted during the international search (name of data base and, where practicable, search terms used)  WEST, DIALOG		
<b>C. DOCUMENTS CONSIDERED TO BE RELEVANT</b>		
Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	US 5,732,398 A (TAGAWA) 24 March 1998, col.2, line 33 thru col. 6, line 64, and col. 15, line 50 thru col. 17, line 8.	1-14
A	US 4,449,186 A (KELLY et al.) 15 May 1984, entire document.	1-14
A	US 5,727,165 A (ORDISH et al.) 10 March 1998, entire document.	1-14
<input type="checkbox"/> Further documents are listed in the continuation of Box C. <input type="checkbox"/> See patent family annex.		
<p>* Special categories of cited documents:</p> <p>"A" document defining the general state of the art which is not considered to be of particular relevance</p> <p>"B" earlier document published on or after the international filing date</p> <p>"L" document which may throw doubt on priority claim(s) or which is cited to establish the publication date of another citation or other special reason (as specified)</p> <p>"O" document referring to an oral disclosure, use, exhibition or other means</p> <p>"P" document published prior to the international filing date but later than the priority date claimed</p>		<p>"T" later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention</p> <p>"X" document of particular relevance; the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone</p> <p>"Y" document of particular relevance; the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art</p> <p>"A" document member of the same patent family</p>
Date of the actual completion of the international search  05 MAY 2000	Date of mailing of the international search report  13 JUN 2000	
Name and mailing address of the ISA/US Commissioner of Patents and Trademarks Box PCT Washington, D.C. 20231 Facsimile No. (703) 305-3230	Authorized officer  ALLEN MACDONALD Telephone No. (703) 308-9708	